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L-12-092

10 CFR 50.73(a)(2)(iv)(A)

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT:
Perry Nuclear Power Plant, Unit 1
Docket No. 50-440, License No. NPF-58
Licensee Event Report Submittal

Enclosed is Licensee Event Report (LER) 2012-001, Manual Reactor Protection System Actuation due to Automatic Turbine Runback. There are no regulatory commitments contained in this submittal.

If there are any questions or if additional information is required, please contact Mr. Robert Coad, Manager – Regulatory Compliance, at (440) 280-5328.

Sincerely,

Vito A. Kaminskas

Enclosure:
LER 2012-001

cc: NRC Project Manager
NRC Resident Inspector
NRC Region III

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 10/31/2013

Estimated burden per response to comply with this mandatory collection request: 80 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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4. TITLE

Manual Reactor Protection System Actuation due to Automatic Turbine Generator Runback

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	01	2012	2012	- 001	- 00	04	27	2012		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

1

10. POWER LEVEL

100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
Robert Swartz, Compliance Engineer, Regulatory Compliance, Perry Nuclear Power Plant	(440) 280- 7664

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete EXPECTED SUBMISSION DATE).* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On March 1, 2012, at 0224 hours, operators manually initiated a reactor protection system actuation in response to a turbine generator runback. At the time of the event, the plant was in Mode 1 with the reactor operating at 100 percent of rated thermal power. All control rods fully inserted into the core and no Emergency Core Cooling systems were required to maintain level.

The turbine generator runback resulted from restoration of a generator stator water cooling system pressure gauge after calibration. A low pressure condition was created in a sensing line common to the gauge and associated pressure switch when a technician opened the gauge isolation valve. The low pressure condition resulted in pressure switch actuation on low pressure and was the direct cause of the turbine generator runback. Corrective actions include coding the pressure gauge calibration as an outage task, revising plant procedures, and training of plant personnel to the lessons learned from this event. The safety significance of this event is considered to be small.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as any event or condition that resulted in a manual or automatic actuation of the reactor protection system.

NARRATIVE

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

INTRODUCTION

On March 1, 2012, at 0224 hours, with the plant operating at 100 percent rated thermal power, a turbine generator [TG] runback occurred while restoring from the calibration of the generator stator water cooling [TJ] inlet pressure gauge. A low pressure condition was created in a sensing line common to the gauge and associated pressure switch when a technician opened the gauge isolation valve. Operators manually initiated a reactor protection system (RPS) [JC] actuation in response to the turbine generator runback. This event was reportable in accordance with 10 CFR 50.72(b)(2)(iv)(B) as any event or condition that results in actuation of the reactor protection system when the reactor is critical. At 0551 hours, the required notification was made to the NRC Operations Center (ENS Number 47710).

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as any event or condition that resulted in a manual or automatic actuation of the RPS.

EVENT DESCRIPTION

On March 1, 2012, at 0100 hours, technicians commenced calibration of the generator stator water cooling inlet pressure gauge. The technician closed the isolation valve to the pressure gauge and then performed the gauge calibration. At 0221 hours, as the technicians were opening the gauge isolation valve, the low pressure and generator protection circuit actuation alarm was observed on a local panel and a turbine generator runback occurred. Turbine bypass valves began to open and Operators manually initiated the RPS in accordance with plant procedures.

The result of this event was an unplanned manual RPS actuation with all rods in verified. No Emergency Core Cooling systems (ECCS) were required to maintain level. The manual RPS actuation did not result in any significant equipment failures or issues.

CAUSE OF EVENT

Two root causes were identified for this event:

1. Inadequate updating of the system operating instruction (SOI) resulted in incorrect technical information in the procedure. A design change was implemented during refuel outage 13 that affected the normal pressure indication at the generator stator water cooling inlet pressure gauge. The SOI was not revised to reflect the new value. The pressure gauge was indicating the correct pressure but plant personnel validated the pressure reading via the SOI and believed it was incorrect based on the outdated information in the SOI. The calibration that resulted in the manual RPS actuation was actually not required to be performed.

2. Less than adequate site implementation of the risk management process resulted in the execution of a maintenance activity online with an unacceptable nuclear safety and generation risk.

EVENT ANALYSIS

On May 31, 2011, a generator stator rewind modification was implemented. As a result, new system setpoints were determined and the new normal reading for the value indicated at the generator stator water cooling inlet pressure gauge was changed. The SOI was not revised to reflect this change.

On July 4, 2011, a low pressure reading was identified at the generator stator water cooling inlet

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pressure gauge. The condition was validated by comparison with the incorrect value referenced in the SOI. Documents were generated to facilitate calibration of the gauge in accordance with the work management process. The gauge calibration was determined to be a green risk activity to be worked online.

On March 1, 2012, at 0100 hours, technicians commenced calibration of the generator stator water cooling inlet pressure gauge. A low pressure condition was created in a sensing line common to the gauge and associated pressure switch when a technician opened the gauge isolation valve. The low pressure condition resulted in pressure switch actuation on low pressure and caused a turbine generator runback. Turbine bypass valves began to open and a manual RPS actuation was initiated at 0224 hours in accordance with plant procedures.

The manual RPS actuation was uncomplicated in that all control rods fully inserted, reactor coolant level and pressure were maintained within expected parameters, and no ECCS systems actuated in response. The RPS functioned as designed.

A Probabilistic Risk Assessment (PRA) evaluation was performed for the March 1, 2012, manual RPS actuation. The analysis indicates that the manual RPS actuation event delta core damage frequency (CDF) of 4.3E-08/yr is well below the acceptable threshold of 1.0E-06/yr as discussed in Regulatory Guide 1.174. Since core damage is required to obtain a large release, the Large Early Release Frequency (LERF) must be below CDF and is therefore below the threshold of 1.0E-07/yr in Regulatory Guide 1.174. The risk of this event is therefore considered to be small in accordance with the regulatory guidance.

CORRECTIVE ACTIONS

An interim order review process has been implemented to ensure work being performed online has an acceptable level of risk. This process will remain in place until training on risk assessment is complete.

Troubleshooting was completed to recreate the low pressure condition and validated the direct cause of the turbine generator runback.

The SOI has been revised to reflect the correct generator stator water cooling inlet pressure value.

The required operating condition for future gauge calibrations will be changed to outage.

An inspection of the gauge snubber will be performed to determine if wear or fouling is present and may have contributed to the pressure response during the gauge calibration.

Additional procedure changes will be implemented and training will be provided to applicable plant personnel with regard to the lessons learned from this event, including risk assessment awareness.

PREVIOUS SIMILAR EVENTS

A review of Licensee Event Reports and the corrective action database for the past three years determined that one similar event had occurred.

LER 2010-003, "Loss of Control Rod Drive Header Pressure Results in Manual RPS Actuation," documents an event where operators manually initiated an RPS actuation. The RPS actuation was required due to a failed master trip unit causing an invalid division 2 loss of coolant accident initiation signal.

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This event was a result of equipment failure, not a maintenance activity. Therefore, the corrective actions associated with this event would not have reasonably been expected to have prevented the event documented in LER 2012-001.

COMMITMENTS

There are no regulatory commitments contained in this report. Actions described in this document represent intended or planned actions, are described for the NRC's information, and are not regulatory commitments.